APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/636,706	04/23/1996	ANN M. WOLLRATH	P1189	3311

22852   7590   11/07/2002

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EXAMINER
LAO, SUE X

ART UNIT	PAPER NUMBER
2126	

2126

DATE MAILED: 11/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ___3___ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Aug 23, 2002* _____.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-33* _____ is/are pending in the application.

    4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-33* _____ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some* c) ☐ None of:

    1. ☐ Certified copies of the priority documents have been received.

    2. ☐ Certified copies of the priority documents have been received in Application No. _____.

    3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    *See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). *22, 30*

4) ☐ Interview Summary (PTO-413) Paper No(s). _____

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other:

DETAILED ACTION

1.   Claims 1-33 are pending. This action is in response to the amendment filed 8/23/2002. Applicant has amended claim 1, 11, 21 and 31-33..

2.   The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3.   Claims 1, 4, 11, 14, 21, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hill et al (US Pat 5,511,197).

It is noted that as disclosed in the application as filed (page 2, lines 21-24 and page 17, lines 16-17), a stub refers to the interfaces for invoking a particular remote program/procedure/method.

As per claims 1, 11, 21, Hill et al teach stub (proxy 303) of a remote method (object 301), a stub retriever (client) configured to retrieve stub (client retrieves class identifier of the proxy) from a server (sent by server) associated with processing of remote method, stub loader for loading stub into execution environment (client dynamically loads code to create an instance of the proxy) and stub used to facilitate remote invocation of remote method (RPC runtime invokes a method of the stub channel) [col. 6, line 65 -col. 7, line 54; col. 19, line 1-47]. In so doing, the stub is available for use. It is noted that the proxy of Hill provides set of interface(s) for invoking / facilitating invocation of a particular remote method (server stub 302, remote object 301), therefore, meeting stub as claimed as well as disclosed (local stub). It would have been obvious that the stub retriever (client) initiates the retrieval process when it needs to (inter-node, vs. intra-node).

As per claims 4, 14, 24, refer to claims 1, 11, 21 respectively for rejection. Further in Hill, the server processes the remote method (client accesses object 301) and provides the stub (send class identifier of the proxy). See col. 6, line 65 -col. 7, line 54.

4.   Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betz ("Interoperable objects: laying the foundation for distributed-object computing", Dr. Dobb's Journal, v19, n11, p18(13)) in view of Hill et al (US Pat 5,511,197).

As per claims 31 and 32, Betz teaches computer (machine) [page 4 of enclosed copy, lines 14-22], stub (stub code) [page 3 of enclosed copy, first full paragraph of page; pages 7-8 of enclosed copy, section Architecture of the Orb].

However, Betz does not teach stub loader for controlling computer to load stub into execution environment to make stub available for use in remote invocation, stub retrieval module configured to control computer to initiate a retrieval of stub from a server associated with processing of remote method.

Hill et al teach stub retriever (client) configured to retrieve stub (client retrieves class identifier of the proxy) from a server (sent by server) associated with processing of remote method, stub loader for loading stub into execution environment (client dynamically loads code to create an instance of the proxy) and stub used to facilitate remote invocation of remote method (RPC runtime invokes a method of the stub channel) [col. 6, line 65 -col. 7, line 54; col. 19, line 1-47]. In so doing, the stub is available for use. It is noted that the proxy of Hill provides set of interface(s) for invoking / facilitating invocation of a particular remote method (server stub 302, remote object 301), therefore, meeting stub as claimed as well as disclosed (local stub). It would have been obvious that the stub retriever (client) initiates the retrieval process when it needs to (inter-node, vs. intra-node).

It would have been obvious to modify the system of Betz by implementing retrieval of stub and loading of stub because it provides it provides a mechanism for automatically generating stubs and proxies.

As per claim 33, refer to claim 31 for rejection and combination of references. It would have been obvious to embody these limitations as code store on a computer readable medium and executable by a computer.

5.   Claims 3, 7-10, 13, 17-20, 23, 27-30 are rejected under 35 U.S.C 103(a) as being unpatentable over Hill et al as applied to claims 1, 11 and 21 and in view of Birrell et al ("Network Objects", 1994).

As per claim 3, Hill et al do not explicitly teach remote method invocation control. Birrell et al teach remote method invocation control (object-oriented system which performs the steps for remote method invocation) [pp. 511,17-21,31-33,39-48]. It would have been obvious to remote invocations include within the system of Hill because it provides the capability of communicating across different address spaces.

As per claim 7, Hill et al do not explicitly teach remote server identifier for providing server identification. Birrell et al teach remote server identifier (hostnames) for providing server identifier. It would have been obvious to include server identifiers within the system of Hill because it provides the capability for associating an address with the server.

As per claim 8, Hill et al in combination with Birrell et al teach remote method server identifier (endpoint) [Birrell : pp 15-16].

As per claim 9, Hill et al in combination with Birrell et al teach remote method invocation identification (identifiers representing the object, the caller and the type of code) for controlling invocation of remote method [Birrell: pp 17-21].

As per claim 10, Hill et al in combination with Birrell et al teach nameserver (name exported from a machine server) for providing server identification and remote server identifier initiating communication with nameserver to obtain the server identification of remote method [Birrell : pp 7-9]

As per claims 13, 17-20, refer to claims 3, 7-10 respectively for rejection and combination of references. It would have been obvious to embody these limitations as method.

As per claims 23, 27-30, refer to claims 3, 7-10 respectively for rejection and combination of references. It would huge been obvious to embody these limitations as a computer program product.

6.   Claims 2, 5, 6, 12, 15, 16, 22, 2,5, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hill et al as applied to claims 1, 11 and 21 and in view of Mitchell et al ("An Overview of the Spring System", Proceedings of Compcon, February 1994).

As per claim 2, Hill et al do not explicitly teach remote method reference detector for detecting whether remote method reference has been received in execution environment.

Mitchell et al teach a remote method reference detector (server creating an object reference) [page 5, section 7, last paragraph of page through page 6, line 4]. It would have been obvious to include within the system as taught by Hill et al a method reference detector as taught by Mitchell because its provides the capability of guaranteeing that the correct data is being accessed.

As per claim 5, Hill et al do not teach providing a separate address space for processing remote method from address space provided by execution environment. Mitchell et al teach separate address space (servers operating in different address spaces from their clients) [page 3, section 3.1]. It would have been obvious to include with the system as taught by Hill et al the capability of separate address space because it provides a mechanism for protecting applications against interfering with each other.

As per claim 6, it would be obvious that the address space provided within Hill et al in combination with Mitchell et al can be provided by separate computers.

As per claims 12, 15, 16, refer to claims 2, 5, 6 respectively for rejection and combination of references. It would have been obvious to embody these limitations as a method.

As per claims 22, 25, 26, refer to claims 2, 5, 6 respectively for rejection and combination of references. It would have been obvious to embody these limitations as a computer program product.

7.   Applicant's arguments filed 8/23/2002 have been fully considered but they are not persuasive.

Applicant argued in substance that Hill does not teach (1) loading a stub into an execution environment, (2) retrieving stub code from a serve. (Pages 6-7).

The examiner disagrees. As to (1)-(2), it is first noted that as disclosed (application as filed, page 2, lines 21-24 and page 17, lines 16-17), a stub refers to the interfaces for invoking a particular remote program/procedure/method. The proxy of Hill (such as 303) provides set of interface(s) for invoking / facilitating invocation of a particular remote method (server stub 302 for remote object 301), therefore, meeting stub as claimed as well as disclosed (local stub). As discussed for claims 1, 11, 21, Hill et al teach [col. 6, line 65 -col. 7, line 54; col. 19, line 1-47] stub (proxy 303) of a remote method (object 301), a stub retriever (client) retrieves stub (client retrieves class identifier of the proxy) from a server (sent by server), stub loader loads stub into execution environment (client retrieves class identifier of the proxy and dynamically loads code to create an instance of the proxy). In so doing, the stub is available for use. It is noted the argued 'stub code' is not recited, see claim 1 for example, which requires 'load said stub' (line 10) which is met by the client retrieving class identifier of the proxy and dynamically loading code in the process of creating an instance of the proxy/client_stub in the client's execution environment.

As to the arguments regarding claims 4, 14, 24 (page 8), refer to claims 1, 11, 21 respectively for discussion and Hill further teaches the server processes the remote method (client accesses object 301) and provides the stub (send class identifier of the proxy). See col. 6, line 65 -col. 7, line 54.

As to the arguments regarding claims 31-33, note discussion of points (1) and (2) above.

As to the arguments regarding claims 3 and 8 (page 10), note respective rejections with respect to the particular teachings and passages of Birrell.

As to the arguments regarding claims 2, 5, 6, 12, 15, 16, 22, 15 and 26 (page 11), note respective rejections with respect to the teaching of Mitchell.

As to the argument (page 11) that claims 1, 11, 21, 31-33 specifies where the stub retriever is located by reciting "a stub retriever configured to initiate a retrieval of said stub

from a server". The examiner disagrees. Applicant's recitation only specifies where the stub is located, rather than where the stub retriever is located.

For these reasons above, applicant's arguments are not persuasive.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sue Lao whose telephone number is (703) 305-9657. A voice mail service is also available at this number. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7238 for After Final communications, (703) 746-7239 for Official communications and (703) 746-7240 for Non-Official/Draft communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-9600.

Sue Lao
November 1, 2002